

WHAT IS CLAIMED:

1. A method for determining coolant quality of a fuel cell system which comprises a load circuit having an insulation resistance, the method comprising:

measuring the insulation resistance of the load circuit; and

determining said coolant quality as a function of measured insulation resistance values.

2. The method of Claim 1, further comprising defining a first threshold value for the insulation resistance and signaling a need for the replacement of coolant when the insulation resistance is below the first threshold value.

3. The method of Claim 2, wherein the signaling is via a visual means, a audio means, or both.

4. The method of Claim 1, further comprising defining a second threshold value for the insulation resistance and shutting down the fuel cell system when the insulation resistance is below the second threshold value.

5. A method for controlling coolant quality of a fuel cell system which comprises a load circuit having an insulation resistance, the coolant having an electrical conductivity, the method comprising

establishing a relationship between the electrical conductivity of the coolant and the insulation resistance of the load circuit;

measuring the insulation resistance of the load circuit to determine the electrical conductivity; and

monitoring the electrical conductivity of the coolant.

6. The method of Claim 5, further comprising defining a first threshold value for the electrical conductivity and signaling a need for the replacement of coolant when the electrical conductivity is below the first threshold value.

7. The method of Claim 6, wherein the signaling is via a visual means, a audio means, or both.

8. The method of Claim 5, further comprising defining a second threshold value for the electrical conductivity and shutting down the fuel cell system when the electrical conductivity is below the second threshold value.

9. The method of Claim 5, wherein the relationship is $y = 639.04x^{-0.7221}$ wherein y is insulation resistance in kOhm and x is electrical conductivity in $\mu\text{s/cm}$.

10. An apparatus for monitoring coolant quality of a fuel system which comprises a load circuit having an insulation resistance, the coolant having an electrical conductivity, the apparatus comprising a monitoring means for measuring the insulation resistance and a signaling means when the insulation resistance is below a predefined threshold value.

11. The apparatus of Claim 10, wherein the signaling means signals via a visual signal, an audible signal, or both.

12. The apparatus of Claim 10, further comprising a means for converting the insulation resistance of the load circuit into electrical conductivity of the coolant via a predetermined relationship.